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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,889	11/19/2001	William P. Delaney	01-019	1064

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EXAMINER
BONZO, BRYCE P

ART UNIT	PAPER NUMBER
2114	8

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 20-28* is/are rejected.

7)☒ Claim(s) *18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 November 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Non-Final Official Action

Status of the Claims

Claims 1-17 and 20-28 are rejected under 35 USC §02.

Claims 18 and 19 are objected to while containing allowable matter.

Rejections under 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-17 and 20-28 are rejected under 35 U.S.C. 102(e) as being anticipated by

Humlicek (United States Patent No. 6,591,264).

The applied reference has a common assignee with the instant application. Based

upon the earlier effective U.S. filing date of the reference, it constitutes prior art under

35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a

showing under 37 CFR 1.132 that any invention disclosed but not claimed in the

reference was derived from the inventor of this application and is thus not the invention

"by another," or by an appropriate showing under 37 CFR 1.131.

Humlicek discloses:

1. A system for implementing a journal of a file system in a computer system which has a system bus, comprising:

a first memory for storing data representing the files of the file system (column 3, lines 4);

a second memory (column 3, line 4); and

a first device coupled to the first memory and the second memory (Figure 5, storage controller);

wherein in the case of an interruption to the file system, the first device is used to rebuild the file system (column 1, lines 51-60),

wherein all updates to the file system are stored by the first device in the second memory (column 4, lines 32-54)),

wherein the first device transfers data between the first memory and the second memory without using the system bus (column 5, lines 63-column 6, line 10).

2. The system of claim 1, wherein in the case of an interruption to the file system, no more than one call is made to the system bus for data transfer in a transaction (inherent as no call disclosed in the disclosure).

3. The system of claim 1, wherein the second memory is a snapshot volume *column 3, line 4).

4. The system of claim 3, wherein the first memory is a file system volume (column 3, line 4).

5. The system of claim 4, wherein the first device is a storage controller mechanism (Figure 5; column 5, lines 63-65).

6. The system of claim 5, wherein neither the first memory nor the second memory is connected to the system bus (Figure 5).

7. The system of claim 6, wherein the storage controller includes a snapshot mechanism (column 6, lines 5-7).

8. The system of claim 7, wherein the snapshot mechanism is integrated into the storage controller (column 6, lines 5-7).

9. A method of journaling or logging a file system, comprising:

resetting or deleting a snapshot after all application-level file system activity completes (Inherent in a functioning journaling file system, if these files are not reset or deleted periodically the journal grows until it fills the entire storage area, thus they are compacted back into the file system after the transaction is closed); and

initiating a transaction in which a snapshot of the current state is created of a file

system volume in which the snapshot is made through hardware and in which, during

the transaction, the file system operates normally (column 6, lines 5-10).

10. The method of claim 9, wherein the method is implemented by a computer system

in which a computer communicates to a storage controller during the transaction

(column 6, lines 3-10).

11. The method of claim 10, wherein the method is further implemented by a file system

volume and a snapshot volume both of which are coupled to the storage controller

(Figure 5).

12. The method of claim 11, wherein the transaction further comprises a series of read

and/or write operations on file system blocks containing either data or file system

metadata (columns 3 and 4 both describe reading/writing metadata).

13. The method of claim 12, wherein any read or write operation is directed to the

storage controller for processing (column 6, lines 3-10).

14. The method of claim 13, wherein any write operation directed to the storage

controller causes a copy-on-write action within the storage controller (column 3, lines

12-57).

15. The method of claim 14, wherein a copy-on-write operation is processed within the storage controller by first reading the original data from the file system volume, then writing said original data to the snapshot volume, and then overlaying said original data on the file system with new data.

16. The method of claim 15, wherein the method involves no more than one data transfer on the system bus per write operation (column 3, lines 21-57).

17. The method of claim 16, wherein the snapshot mechanism is wholly contained within the storage controller and comprises a microprocessor, a memory, and either software or firmware (column 6, lines 3-19).

20. A method for journaling or logging a file system of a computer system, wherein software for the file system does not manage any form of sequential journal or log, comprising:

storing changes to the file system in hardware (column 1, lines 40-59).

21. The method of claim 20, wherein the hardware for storing changes to the file system is a snapshot mechanism in a storage controller (column 6, lines 3-8).

22. The method of claim 21, further comprising initiating a transaction in which a snapshot of the current state is created in the snapshot mechanism in which, during the transaction (column 6, lines 3-8), the file system is operating normally and committing the transaction by resetting or deleting the snapshot after all application-level file system activity completes (Inherent in a functioning journaling file system, if these files are not reset or deleted periodically the journal grows until it fills the entire storage area, thus they are compacted back into the file system after the transaction is closed).

23. The method of claim 22, further comprising making a roll back request from a host computer to a storage controller which causes any changes made during the transaction to be discarded, and the file system to be restored to its state just prior to the initiation of the transaction (column 1, further this property is inherent to a journaling system to maintain consistency).

24. A method of journaling or logging a file system, comprising:

transmitting a roll back request from a processing unit to a snapshot mechanism implemented in hardware (column 3, line 58 through column 4, line 7); and

initiating a transaction in which a snapshot of the current state is created of a file system volume in which, during the transaction, the file system operates normally (column 6, line 5 – 10; column 2, lines 36-38).

25. The method of claim 24, wherein transmitting the roll back request occurs after any host computer restart or any interruption of the file system (this is the entire purpose of a roll back system, to roll back to a prior state in the event of a failure);.

26. The method of claim 25, wherein the storage controller responds to the rollback request by restoring the point-in-time image represented by the snapshot volume to the file system volume (column 2, lines 31-35).

27. The method of claim 26, further comprising the step of resetting or deleting the snapshot after all application-level file system activity completes (Inherent in a functioning journaling file system, if these files are not reset or deleted periodically the journal grows until it fills the entire storage area, thus they are compacted back into the file system after the transaction is closed);.

28. The method of claim 27, wherein the hardware is contained in the storage controller and comprises a microprocessor and a memory (column 6, lines 3-10).

Allowable Subject Matter

Claims 18 and 19 are objected to while containing allowable subject matter. Applicant is reminded that subject matter is indicated allowable in view of the claim as a whole, including any limitations from an interceding parent claim. Any modification to

this claim may jeopardize this indication of allowable matter. A brief indication of the allowable matter follows:

As per claims 18 and 19:

18. The method of claim 17, *wherein the file system did not originally have a journaling or logging capability and is being retrofitted to have this capability.*

19. The method of claim 18, wherein software for the file system does not manage any form of sequential journal or log.
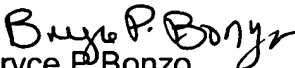
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryce P Bonzo whose telephone number is (703) 305-4834. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bryce P. Bonzo
Examiner
Art Unit 2114

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